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# PINOT NOIR: Pulmonic INSufficiency imprOvement with Nitric Oxide Inhalational Response

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Orlando, FL, USA. 2-5 February 2012**Background**

Tetralogy of Fallot (TOF) repair and pulmonary valvotomy for pulmonary stenosis (PS) often lead to progressive pulmonary insufficiency (PI), right ventricular enlargement and dysfunction. This study assessed whether the pulmonary regurgitant fraction measured by cardiac magnetic resonance imaging (CMR) could be reduced by a selective pulmonary vasodilator.

**Methods**

Patients with at least moderate PI by echocardiography undergoing a clinically indicated CMR study were prospectively enrolled. Patients with a RV-PA conduit or residual pulmonic stenosis were excluded. Ventricular volume and blood flow sequences were obtained at baseline and after administration of 40ppm inhaled nitric oxide (iNO). Eleven Sixteen patients (11 with repaired TOF and 5 with repaired PS) completed the protocol with adequate data for analysis.

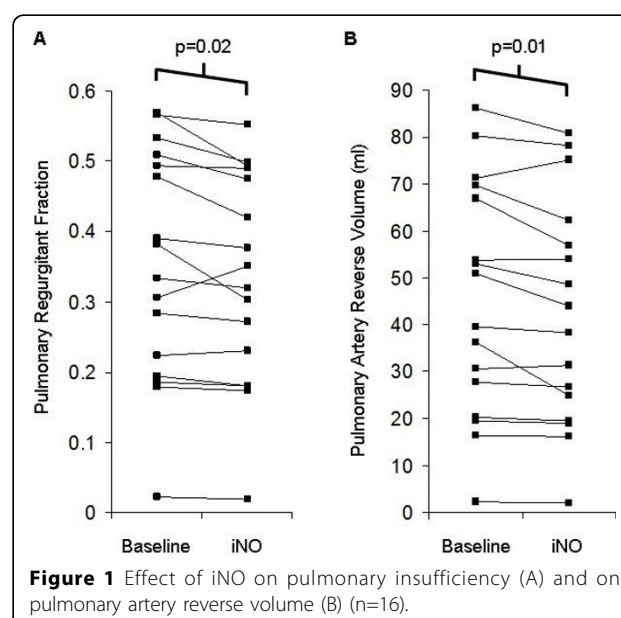
**Results**

The median age [range] was 35 [19 - 46] years, BMI was  $26 \pm 5$  kg/m<sup>2</sup> (mean  $\pm$  standard deviation), 50% were women and 75% were in NYHA class I. Right ventricular end diastolic volume index for the cohort was  $157 \pm 33$  mL/m<sup>2</sup>, end systolic volume index was  $93 \pm 20$  mL/m<sup>2</sup> and right ventricular ejection fraction was  $40 \pm 6\%$ . Baseline pulmonary regurgitant volume was  $45 \pm 25$  mL/beat and regurgitant fraction was  $35 \pm 16\%$ . During administration of iNO, regurgitant volume was reduced by an average of  $6 \pm 9\%$  ( $p=0.01$ ) and regurgitant fraction

was reduced by an average of  $5 \pm 8\%$  ( $p=0.02$ ). No statistically significant changes were observed in stroke volume, ejection fraction or cardiac output for either the left or right ventricle.

**Conclusions**

iNO administration appears to reduce the regurgitant fraction in patients with at least moderate PI suggesting a potential role for selective pulmonary vasodilator therapy in these patients.



**Figure 1** Effect of iNO on pulmonary insufficiency (A) and on pulmonary artery reverse volume (B) (n=16).

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